CLAIMS

1. A method for separating a substance, comprising the steps of:
(a) adding the substance to be analyzed to a separation medium retained in a substrate, wherein the surface of the substrate that comes into contact with the separation medium has been coated with a polymer membrane; and
(b) applying separation pressure to the separation medium.

2. The method according to claim 1, wherein the polymer membrane is a plasma-polymerized membrane obtained by plasma polymerization.

3. The method according to claim 2, wherein the plasma-polymerized membrane is formed by plasma polymerization using a monomer selected from the group consisting of hexadiene, hexamethyldisiloxane, acetonitrile, hexylamine, and aminoacetaldehyde dimethylacetal.

4. The method according to claim 1, wherein the polymer membrane is a surface-polymerized membrane obtained by polymerizing polymerizable monomers on the substrate surface.

5. The method according to claim 4, wherein the surface-polymerized membrane is immobilized onto the substrate surface via a hydrophobic spacer and is covalently linked to the hydrophobic spacer with a carbon-carbon single bond.

6. The method according to claim 5, wherein the hydrophobic spacer is an alkyl group of 2 to 6 carbon atoms.

7. The method according to claim 1, wherein the polymer membrane is a polymer-bound membrane obtained by binding a polymer compound onto the substrate surface.

8. The method according to claim 7, wherein the polymer-bound membrane is formed by covalently linking, onto the substrate, a polymer compound selected from the group consisting of polystyrene, polyallylbenzene, polyvinyl alcohol, polyacrylamide, polyvinyl sulfonate, polyacrylic acid, polydiallyl dimethylammonium salt, polyallylamine, and polyethylene glycol.

9. The method according to any one of claims 1 to 8, wherein the substrate is a planar basal plate.

10. The method according to any one of claims 1 to 9, wherein the substrate is made of glass.

11. The method according to any one of claims 1 to 10, wherein the principle of separation is electrophoresis.

12. The method according to claim 11, wherein the principle of electrophoresis is isoelectric focusing.

13. The method according to any one of claims 1 to 12, wherein the substance to be separated is a protein.

14. A method for producing a separatory and analytical substrate, which comprises the step of forming a plasma-polymerized membrane on a substrate surface by plasma polymerization.

15. The method according to claim 14, wherein the plasma-polymerized membrane is formed on the substrate surface by plasma polymerization of a monomer selected from the group consisting of hexadiene, hexamethyldisiloxane, acetonitrile, hexylamine, and aminoacetaldehyde dimethylacetal.

16. A method for producing a separatory and analytical substrate, which comprises the step of forming a surface-polymerized membrane by polymerizing polymerizable monomers on a substrate surface.

17. The method according to claim 16, wherein the substrate surface has a hydrophobic functional group having a double bond at its end and the method comprises polymerizing a polymerizable monomer with the hydrophobic functional group.

18. The method according to claim 17, wherein the hydrophobic functional group is an alkenyl group of 2 to 6 carbon atoms having a double bond at its end.

19. A method for producing a separatory and analytical substrate, which comprises the step of forming a polymer-bound membrane by immobilizing a polymer compound onto a substrate surface.

20. The method according to claim 19, wherein the polymer-bound membrane is formed by covalently linking onto a substrate a polymer compound selected from the group consisting of polystyrene, polyallylbenzene, polyvinyl alcohol, polyacrylamide, polyvinyl sulfonate,

polyacrylic acid, polydiallyl dimethylammonium salt, polyallylamine, and polyethylene glycol.

21. The method according to any one of claims 14 to 20, wherein the substrate is a planar basal plate.

22. The method according to any one of claims 14 to 21, wherein the substrate is made of glass.

23. A method for modifying the surface of a separatory and analytical substrate, which comprises the step of forming a plasma-polymerized membrane on the substrate surface.

24. A method for modifying the surface of a separatory and analytical substrate, which comprises the step of forming a surface-polymerized membrane by polymerizing polymerizable monomers on the substrate surface.

25. A method for modifying the surface of a separatory and analytical substrate, which comprises the step of forming a polymer-bound membrane by immobilizing a polymer compound onto a substrate surface.

26. A separatory and analytical substrate whose surface that comes into contact with a separation medium has been coated with a polymer membrane.

27. The separatory and analytical substrate according to claim 26, wherein the polymer membrane is a plasma-polymerized membrane prepared by plasma polymerization.

28. The separatory and analytical substrate according to claim 26, wherein the polymer membrane is a surface-polymerized membrane obtained by polymerizing polymerizable monomers on the surface of a substrate.

29. The separatory and analytical substrate according to claim 26, wherein the polymer membrane is a polymer-bound membrane obtained by binding a polymer compound onto a substrate surface.

30. An electrophoretic analyzer composed of the following elements:
(a) a substrate for retaining an electrophoretic medium, wherein the surface of the substrate that comes into contact with the medium has been coated with a polymer membrane; and
(b) electrodes for applying voltage to the electrophoretic medium retained in the substrate.